

Remarks

Claims 1 to 26 have been cancelled without prejudice or disclaimer and with the understanding that Applicant may pursue the subject matter encompassed by the cancelled claims in a future continuation application. New claims 27-53 have been added. The new claims find support in the claims as originally filed and throughout the specification, including the figures, and do not introduce new matter.

More specifically, claim 27 finds support in the specification at, for example, page 4, lines 15-22; page 5, lines 6-13; and page 10, lines 8-10. That the isoelectric substance is not bound to the ion-permeable barriers is understood from, for example, the description in the specification re: the relative physical properties of the barriers and the isoelectric substance, the fact that solutions of the isoelectric substance may be flowing (see page 6, lines 5-13) and from the use of the term “barrier” to describe the ion-permeable structures surrounding the isoelectric substance – a term that would serve no purpose if the isoelectric substance were bound to the membranes.

Claims 28-33 find exemplary support at page 4, line 23 through page 5, line 3.

Claims 34 and 35 find exemplary support at page 5, lines 14-29.

Claims 36-39 find exemplary support at page 5, line 30 through page 6, line 4.

Claims 40 and 41 find exemplary support at page 6, lines 5-9.

Claims 42 and 43 find exemplary support at page 3, lines 3-20.

Claims 44-53 find exemplary support in Figures 3 and 4 and at page 6, line 14 through page 10, line 1.

1. Rejection under 35 U.S.C. § 112, first paragraph

Claims 1, 6-8 and 10-26 are rejected for failing to comply with the written description requirement. The Examiner has not provided any information, however, which specifically identifies the claim language which prompted this rejection. Applicant therefore seeks clarification of this rejection from the Examiner or, in light of the fact that claims 1, 6-8 and 10-26 have been canceled and replaced with new claims that find full support in the specification, requests that this rejection be withdrawn.

Claims 1, 15, 16, 18-21 and 23-25 are also rejected for containing new subject matter that was not described in the originally filed disclosure. In particular, the Examiner cites the claim language that recites the isoelectric substance as having a characteristic size that is larger than the pore size of various ion-permeable barriers. Applicant has cancelled claims 1, 15, 16, 18-21 and 23-25 and added new claims 26-53 which find full support in the specification and do not contain this language. Applicant therefore

requests that this rejection be withdrawn.

The Examiner additionally makes a general rejection of claims that recite a substantial restriction of the movement of the isoelectric substance through the ion-permeable barrier and of claims that recite the pI value of the isoelectric gateway as being substantially constant during electrophoresis. Applicant has cancelled all previously pending claims and has added new claims 27-53 that do not employ these phrases. As such, Applicant requests that this general rejection be withdrawn as well.

2. Objections

Claims 1, 16 and 21 are objected to for lacking a comma to separate “non-ionic membrane” and “isoelectric membranes.” Applicant has cancelled claims 1, 16 and 21. Where these terms appear as a list in the new claims, they are properly separated by a comma. Applicant therefore requests that this objection be withdrawn.

3. Rejections under 35 U.S.C. 103(a)

A. Bier in view of Faupel

Claims 1, 7 and 12-26 are rejected as being unpatentable over U.S. Patent 4,204,929 to Bier *et al.* (“Bier”) in view of U.S. Patent 5,082,548 to Faupel *et al.* (“Faupel”). The Examiner cites to the description of Immobilines in Faupel as not moving through ion-permeable layers and asserts that it would have been obvious to utilize the teaching of Faupel for the isoelectric gateway of Bier to arrive at Applicant’s claimed invention.

Applicant respectfully disagrees with the Examiner regarding his assessment of the applicability of Faupel to the teaching of Bier in allegedly rendering Applicant’s invention obvious. Bier clearly teaches an apparatus containing a series of permeable membranes through which the described isoelectric substances freely migrate. In contrast, in Applicant’s claimed invention the isoelectric substance is substantially retained between the ion-permeable barriers enclosing it. Faupel does not remedy this deficiency present in Bier because in Faupel, and unlike the isoelectric substance described in Applicant’s invention, the Immobilines adhere to the surface of the container in which they reside. This aspect of the Faupel invention is referred to in the following disclosure: “After the polymerization [of the Immobilines] process is finished, the parafilm is removed.... At least those parts of the container coming in touch with the polymer have to be made of some material to which the polymer well adheres, e.g. of glass, in order to avoid the passage of some liquid between the wall of the container and the [matrix of Immobiline]

polymer” (col. 5, lines 41-50). Thus, it is apparent that Faupel teaches a very different invention than the one claimed by Applicant where the isoelectric substance is not covalently bound to the ion-permeable barriers which contain it and where solutions of the isoelectric substance may flow.

Further, a person of ordinary skill in the art would not be motivated to combine Bier and Faupel. Bier is directed to a isoelectric focusing approach that makes use of small molecular-weight amphoteric compounds that flow between a plurality of microporous membranes along with the compounds to be separated as a way of streamlining the flow of liquid through the apparatus and avoiding undesired fluid convection and wall electroosmosis (see, *e.g.*, col. 5, lines 22-60). In contrast, Faupel is directed to a focusing technique where “the protein of interest is not driven electrophoretically into the [Immobiline-containing] gel matrix (from which it would have to be recovered by an additional purification step), but is kept in an isoelectric state in the liquid stream...” (col. 6, lines 26-30). Faupel even acknowledges that “[a] conventional isoelectric focusing (IEF) system [like Bier] would not be suitable for the process according to the present invention” (col. 6, lines 58-60).

For at least the reasons stated above, Applicant requests that this rejection be withdrawn.

B. Bier and Faupel in view of Perry

Claim 6 is rejected as being unpatentable over Bier and Faupel in view of U.S. Patent 5,087,338 to Perry *et al.* (“Perry”). The Examiner cites Perry for teaching membranes constructed from cellulose esters and polysulfones.

Because Perry cannot remedy the above-discussed deficiencies present in Bier alone or in a Bier-Faupel combination, Applicant requests that this rejection be withdrawn.

C. Bier and Faupel in view of Dubrow

Claim 8 is rejected as being unpatentable over Bier and Faupel in view of U.S. Patent 5,164,055 to Dubrow (“Dubrow”). The Examiner cites Dubrow for teaching glass frits for use in an IEF apparatus.

Because Dubrow cannot remedy the above-discussed deficiencies present in Bier alone or in a Bier-Faupel combination, Applicant requests that this rejection be withdrawn.

D. Bier and Faupel in view of Martin

Claim 10 is rejected as being unpatentable over Bier and Faupel in view of U.S. Patent 4,243,507 to Martin *et al.* (“Martin”). The Examiner cites Martin for teaching the use of a weak acid-strong base

combination in an alternate isoelectric device.

Because Martin cannot remedy the above-discussed deficiencies present in Bier alone or in a Bier-Faupel combination, Applicant requests that this rejection be withdrawn.

E. Bier and Faupel in view of WO'870

Claim 11 is rejected as being unpatentable over Bier and Faupel in view of WO 92/15,870 ("WO '870"). The Examiner cites WO '870 for teaching polyaminopolycarboxylic acid as a conventional material for forming an isoelectric substance.

Because WO '870 cannot remedy the above-discussed deficiencies present in Bier alone or in a Bier-Faupel combination, Applicant requests that this rejection be withdrawn.

4. Conclusion

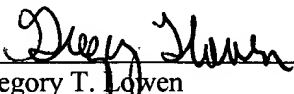
Upon consideration of the foregoing, it will be recognized that Applicant has fully and appropriately responded to all of the Examiner's rejections. Accordingly, all claims are believed to be in proper form in all respects and a favorable action on the merits is respectfully requested. Should the Examiner feel that there are any issues outstanding after consideration of this amendment, the Examiner is invited to contact Applicant's undersigned representative to expedite prosecution.

Except for issue fees payable under 37 C.F.R. 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account 50-0310. This paragraph is intended to be a **constructive petition for extension of time** in accordance with 37 C.F.R. 1.136(a)(3).

Respectfully submitted,

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